	Application No.	Applicant(s)
Notice of Allowability	09/955,164	MIYAZAWA, YASUNAGA
	Examiner	Art Unit	
	Huyen Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *9/1/2004*.

2. ☒ The allowed claim(s) is/are *1 and 2*.

3. ☒ The drawings filed on *19 September 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some*   c) ☐ None of the:
        1. ☒ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
           International Bureau (PCT Rule 17.2(a)).
    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .
    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .
    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____ .

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Mr. Gang Luo on 1/18/2005. The application has been amended as follows: claims

3-4 are cancelled.

Allowable Subject Matter

2.   Claims 1-2 are allowed.

3.   The following is an examiner's statement of reasons for allowance: prior art of

record, Yamamoto et al. (US Patent No. 5970445) teach a method for recognizing

speech by using equal division quantization in which input speech is acoustically

analyzed and the analysis result is quantized based on the output probability distribution

of statistic models of speech. Yamamoto et al., however, fail to specifically disclose a

method using a noncorrelative normal distribution as an output-probability distribution

for speech recognition, in which, when an input vector at a time is represented by Y (Y

has n-dimensional components, and n is a positive integer), dispersion in k dimensions

(k is any natural number from 1 to n) in the case of states i to j is represented by

.sigma.ij(k), and an average in the k dimensions in the case of states i to j is

represented by .mu.ij(k), a formula for finding the output probability being provided by:

expression 1: 1b ij (Y) = k = 1 n (1 2 ij (k) 2) 1 2 e-k=1n[{yk- ij (k) }22ij 2 (k)](1)

using the logarithms of both sides thereof, by: expression 2: 2 log x b ij (Y) = log x [k =

1 n (1 2 ij 2 (k)) 1 2] A - k = 1 n [{ y k - ij (k) } 2 2 ij 2 (k)] log x e B ' B (2)

reducing the number of calculations of a calculation term represented by [{yk-

.mu.ij(k)}2]/2.sigma.ij(k)2.multidot- .logxe in expression (2) by: creating code books in

which the values in dimensions of input vector Y at a time are represented by sets of

representative values; substituting the values in the dimensions (first to n-th

dimensions) of input vector Y at said time by codes existing in said code books; finding,

based on the codes, the calculation term represented by [{yk-

mu.ij(k)}2]/2.sigma.ij(k)2.multidot.logxe by referring to tables; Also, it is not obvious to

one of ordinary skill in the art at the time of invention to modify Yamamoto et al. by

incorporating the method of the claimed invention. Therefore, claims 1-2 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the

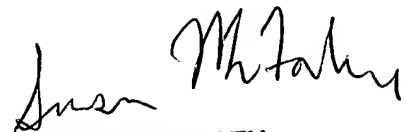examiner should be directed to Huyen Vo whose telephone number is 703-305-8665.

The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo   November 30, 2004

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SUSAN MCFADDEN
PRIMARY EXAMINER